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NASA Selects Teams for Space Weather Mission and Studies

Four university teams will share $100 million to provide experiments and supporting hardware for a future NASA mission to study near-Earth space radiation. This type of radiation is hazardous to astronauts, orbiting satellites and aircraft flying high altitude polar routes.

The teams will initially use $4.2 million to perform a one-year cost, management and technical study prior to assembling and testing their scientific payload for the mission. The anticipated lifetime cost of payload development is $96 million.

Called the Radiation Belt Storm Probes, the two-spacecraft mission is scheduled for launch in 2012. The mission will study how accumulations of space radiation form and change during space storms. Space weather storms involve constantly changing magnetic and electric fields and gusts of radiation particles that produce intense energy. This energy can black out long-distance communications over entire continents and disrupt the global navigational system.

"This research will provide information to aid those working in this environment to respond proactively to space radiation events, rather than reactively," said NASA's Heliophysics Division director Dick Fisher.

NASA also has selected three teams to share approximately $2.3 million to conduct studies for small missions that will augment the 2012 mission. NASA will review the studies and select one investigation for continued development.

Proposals for the 2012 mission and studies were submitted to NASA in response to an Announcement of Opportunity released in August 2005. Selected teams and experiments for the 2012 mission:

- Boston Univ., Boston; directly measure the near-Earth space radiation particles to determine the physical processes that produce radiation enhancements and loss

- University of Iowa, Iowa City, Iowa; understand the origin of plasma waves that energize space particles to radiation levels; measure the distortions to Earth's magnetic field that control the structure of the planet's radiation belts

- University of Minnesota, Minneapolis; study electric fields in space that energize radiation particles and modify the structure of the inner magnetosphere

- New Jersey Institute of Technology, Newark, N.J.; determine how space weather creates what is called the "storm time ring current" around Earth and determine how that ring current supplies and supports the creation of radiation populations

Selected teams for studies and areas of research to augment the 2012 mission:

- University of Colorado at Boulder, Colo.; a potential U.S. contribution of scientific instrumentation for a Canadian scientific satellite

- University of Central Florida, Orlando, Fla.; measure the response of the Earth's thermosphere and ionosphere to space weather forces

- Dartmouth College, Hanover, N.H.; seek to discover the mechanisms that cause the Earth's radiation belts to periodically drain away into the planet's atmosphere

The National Reconnaissance Office, Chantilly, Va., plans to enhance the mission's scientific goals by contributing an experiment to gather additional data that will better characterize the radiation environment in space. The experiment will extend the measurement capabilities to a range beyond what was originally planned for the mission.

These investigations and the Radiation Belt Storm Probe mission are part of NASA's Living with a Star Program. The program is designed to understand how and why the sun varies, how planetary systems respond and the effect on human space and Earth activities.
The program is managed by NASA's Goddard Space Flight Center, Greenbelt, Md., for the agency's Heliophysics Division of the

Science Mission Directorate.

For more information on NASA's Living with a Star Geospace Program, visit:

http://www.lws.nasa.gov/geospace

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